

ABSTRACT OF THE DISCLOSURE

A method for monitoring the mechanical condition of a reciprocating compressor having a packed-plunger cylinder is provided. An end assembly is attached to one end of the cylinder, and the strain of at least one component of the end assembly is measured as the plunger reciprocates within the cylinder. The measured strain is correlated with a crank angle to facilitate generation of a strain profile. Two pressure values related to the pressure in the cylinder are determined when the plunger is at two different locations. This facilitates generation of a cylinder pressure profile based on the correlated measured strain. The cylinder pressure profile is thus generated without the use of intrusive gauges or sensors, which may create a leak path, or create a stress concentration in the wall of the cylinder.